APRIL/MAY 2023

GCA13/DCA13 — DATA STRUCTURES

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Distinguish between Array and Linked list.

2. What is Circular Linked list?

3. Define the term – Slack.

4. What is Queue?

5. Define the term – Binary tree.

6. How to represent Trees?

7. Define the term – Collision Resolution.

8. What is External Sorting?

9. What are the Graph Traversal methods?

10. List out the operations of Graph.

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SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Describe the implementation of List and Linear list concepts.

Or

(b) Explain the working of Doubly Linked list using an example.

12. (a) Discuss on the basic Stack operations.

Or

(b) Describe the Queue Simulation.

13. (a) Explain the basic Tree concepts and terminologies.

Or

(b) Discuss on the Binary Search Tree operations.

14. (a) Describe the basic concepts of Hashed List Searches.

Or

(b) Explain the functioning of Heap sort algorithm.

15. (a) Discuss on Graph Storage Structures.

Or

(b) Describe the Minimum Spanning Tree Data Structure and Algorithm.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss on One, Two dimensional Arrays and the operations with Array.

17. Describe the Infix to Postfix Transformation algorithm using Stack with an example.

18. Explain the Binary Tree Traversal techniques.

19. Discuss on the working of Quick Sort algorithm using a numerical example.

20. Describe the Graph Algorithms.
